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Davida Fischman TSSA Winter 2015

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TSSA Winter 2015 Report
Davida Fischman, Mathematics
Joint Mathematics Meetings, January 10-13, 2015, San Antonio, TX

Main conference link:
http://jointmathematicsmeetings.org/meetings/national/jmm2015/2168_intro

Full Conference program:
http://jointmathematicsmeetings.org/meetings/national/jmm2015/2168_program.html

I attended a number of interesting teaching-related sessions in this conference, among them the Minicourse Introduction to Process Oriented Guided Inquiry Learning (POGIL) in Mathematics (see more at: http://jointmathematicsmeetings.org/meetings/national/jmm2015/2168_minicourses#sthash.1scdRglc.dpuf). Having previously heard quite a bit about the development of POGIL for chemistry courses, I was particularly interested in learning how POGIL is applied in mathematics courses.

In order to engage the audience (all of whom were mathematicians and/or mathematics educators), the presenters took us through a POGIL activity in economics designed to answer the question: "What are credit default swaps, and how did they contribute to the 2007-2008 banking crisis?". They then described and analyzed the motivation for POGIL and a typical structure of a POGIL activity, along with motivation for various components:

- Organization of a POGIL course
- Basic POGIL classroom implementation
- Structure of a POGIL activity, based on the learning cycle of: exploration, concept invention/term introduction, and application
- Facilitation and group roles: manager, recorder, spokesperson (presenter), strategy analyst
- Analysis of student process skills and expected actions: oral and written communication, teamwork, problem solving, critical thinking, team and self-management, information processing, assessment and self-assessment.

Unfortunately there was not a great deal of discussion on how to apply these ideas in mathematics, but I am hoping to learn more about that in the future, and possibly design some similar activities in one of my courses. Some conclusions I drew based on POGIL in math minicourse:

- POGIL offers a well-structured approach to discovery learning. It seems that with appropriate activities, this might work well also in mathematics.
- The team who put on this workshop are currently in the process of designing POGIL activities in mathematics through an NSF grant, and I plan to follow up with them in order to (possibly) bring some of their work to our department.
- Meanwhile, it seems interesting to think about one or two mathematics content areas that might benefit from this approach, and I will do so.